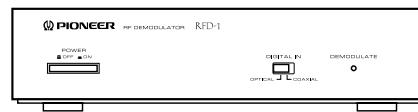


# Service Manual



ORDER NO.  
**RRV1945**

## RF DEMODULATOR **RFD-1**

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

Type	Model	Power Requirement	The voltage can be converted by the following method.
	RFD-1		
KUC	<input type="radio"/>	AC120V	—
SD	<input type="radio"/>	AC110V/120 – 127V/220V/240V	With the voltage selector

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# 1. SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

## WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

## NOTICE

### (FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

## REMARQUE

### (POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

### (FOR USA MODEL ONLY)

## 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

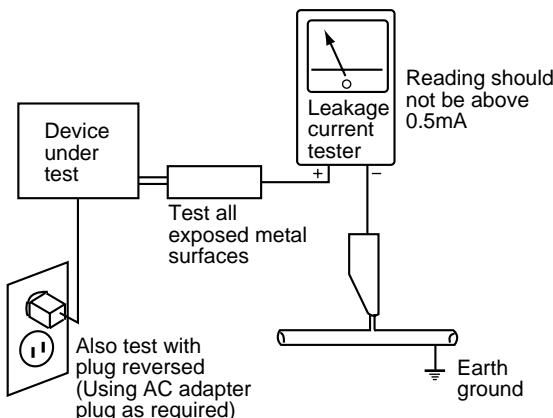
## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

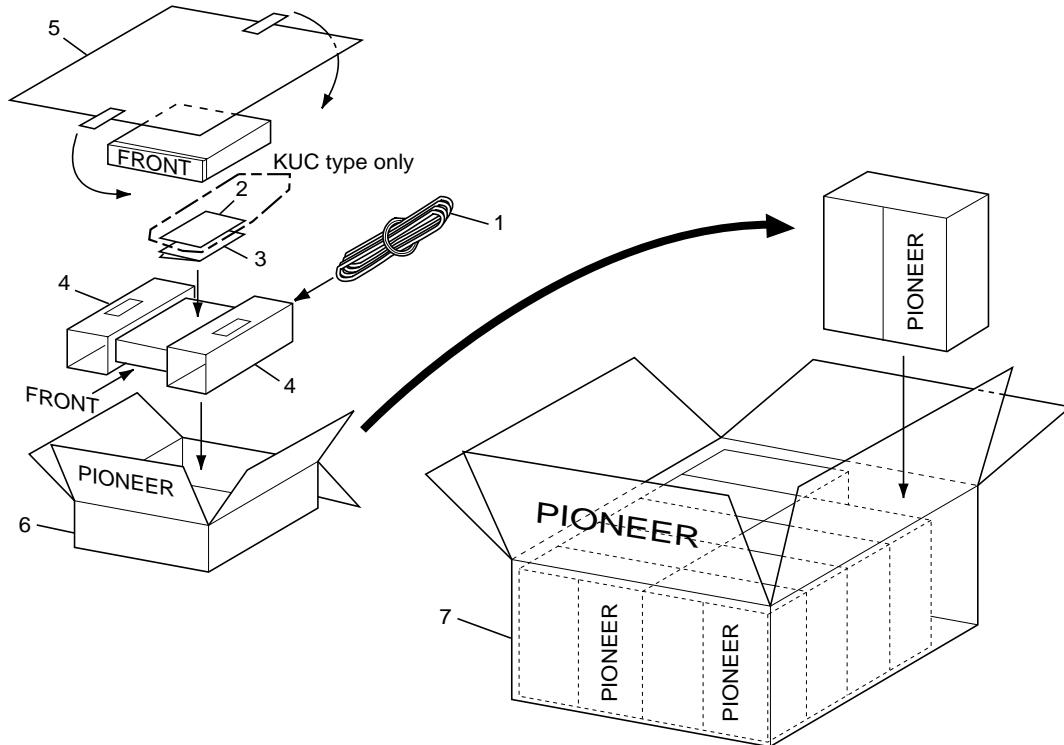


## 2. EXPLODED VIEWS AND PARTS LIST

**NOTES:**

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Screws adjacent to  $\nabla$  mark on the product are used for disassembly.

### 2.1 PACKING



#### (1) PACKING PARTS LIST

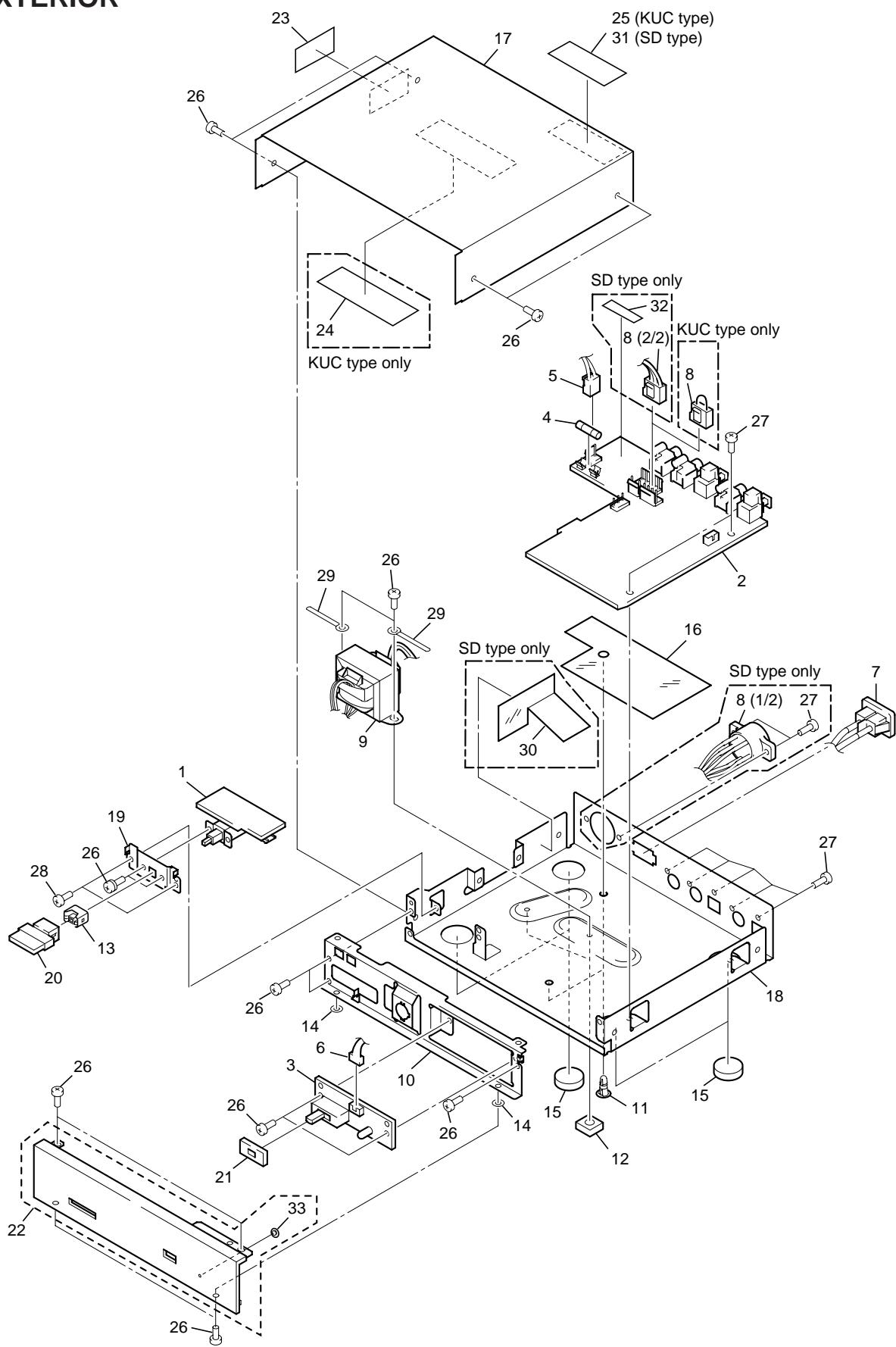
Mark	No.	Description	Part No.
$\triangle$ NSP	1	Power Cord	See Contrast table (2)
	2	Warranty Card	See Contrast table (2)
	3	Operating Instructions (English/French/Spanish/Chinese)	VRE1072
	4	Protector	DHA1235
	5	Packing Sheet	RHC1050
	6	Packing Case	See Contrast table (2)
	7	Master Carton	See Contrast table (2)

#### (2) CONTRAST TABLE

RFD-1/KUC and RFD-1/SD are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			RFD-1/KUC	RFD-1/SD	
$\triangle$ NSP	1	Power Cord	ADG1126	ADG7003	
	2	Warranty Card	ARY1044	Not Used	
	6	Packing Case	VHG1745	VHG1749	
	7	Master Carton	VHG1746	VHG1750	

## 2.2 EXTERIOR



## (1) EXTERIOR PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	SW Assy	VWR1303	NSP	17	Bonnet Case	VNA1952
	2	DEM Assy	VWV1601		18	Main Chassis	See Contrast table (2)
	3	LED Assy	VWY1048		19	SW Stay	VNE2148
	△ 4	FU1 Fuse	See Contrast table (2)		20	Power Knob	VAC1030
	△ 5	Housing Assy (3P)	VKP2178		21	Cushion	VEC1981
NSP	6	Housing Assy (4P)	VKP2179	NSP	22	Front Panel Assy	VXA2370
	△ 7	AC Inlet Assy	See Contrast table (2)		23	Caution Label	ARW7036
	△ 8	Housing Assy	See Contrast table (2)		24	65 Label	See Contrast table (2)
	△ 9	Power Transformer (AC110V/120V-127V/220V/240V)	VTT1153		25	DOC Label	See Contrast table (2)
	10	Front Stay	DND1140		26	Screw	BBZ30P060FZK
NSP	11	Locking Card Spacer	ONK1035	NSP	27	Screw	BBZ30P080FCC
	12	Disc Guard	PNM1245		28	Screw	PMA30P060FMC
	13	Guide Ring	VEC-151		29	Cord Stopper	ZCB-069Z
	14	Washer	VEC1254		30	Sheet A (PVC)	See Contrast table (2)
	15	Poron Leg	VEC1987		31	FCC Label	See Contrast table (2)
NSP	16	Sheet B (PVC)	VEC1990	NSP	32	Fuse Label	DNK2331
					33	LED Lens	

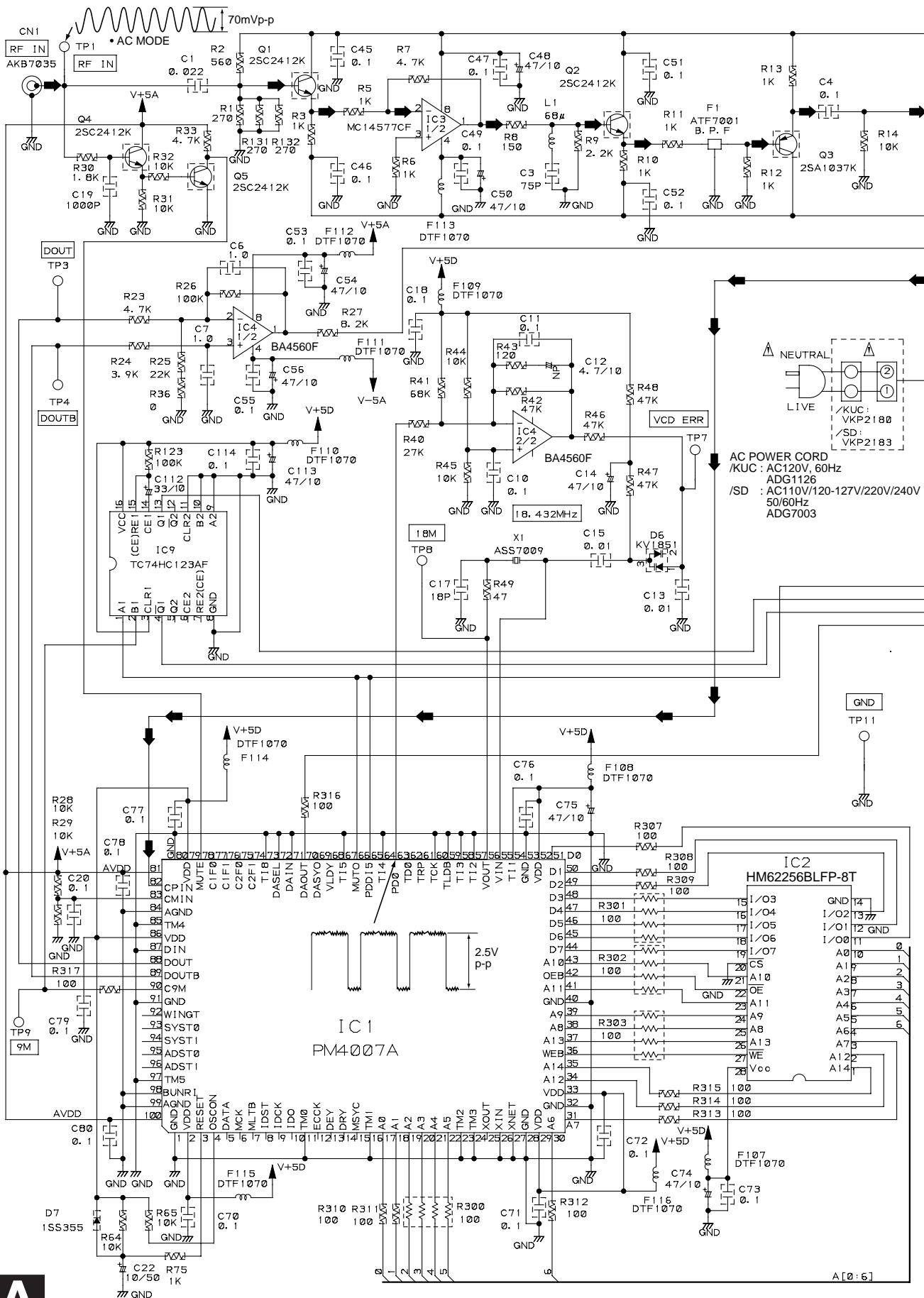
## (2) CONTRAST TABLE

RFD-1/KUC and RFD-1/SD are constructed the same except for the following :

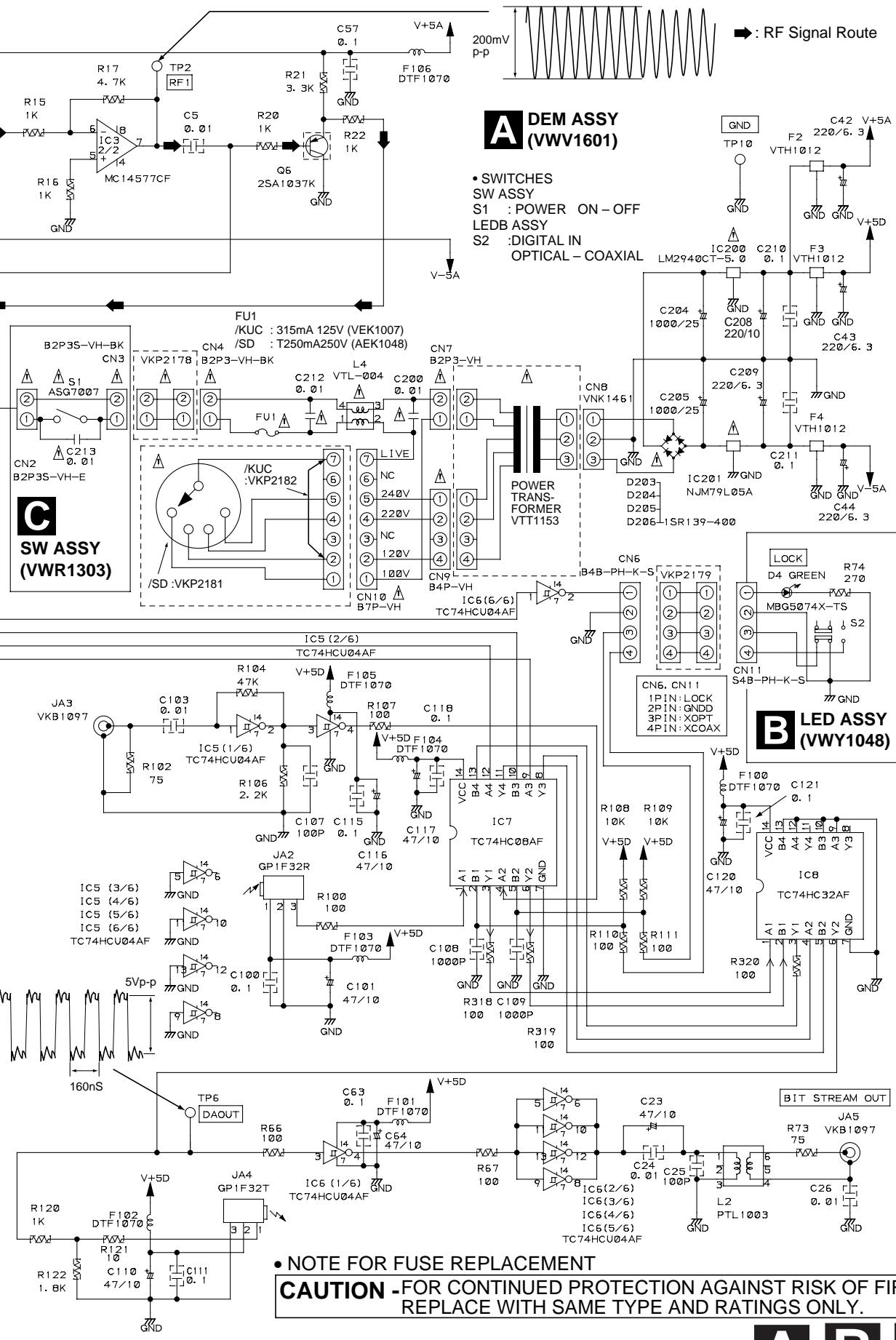
Mark	No.	Symbol and Description	Part No.		Remarks
			RFD-1/KUC	RFD-1/SD	
NSP	4	FU1 Fuse (315mA)	VEK1007	Not Used	
	4	FU1 Fuse (T250mA)	Not Used	AEK1048	
	7	AC Inlet Assy	VKP2180	VKP2183	
	8	Housing Assy	VKP2182	VKP2181	
	18	Main Chassis	VNA1974	VNA1950	
	24	65 Label	ORW1069	Not Used	
	25	DOC Label	VRW1726	Not Used	
	30	Sheet A (PVC)	Not Used	VEC1993	
	31	FCC Label	Not Used	VRW1725	
	32	Fuse Label	Not Used	VRW1727	

### 3. SCHEMATIC DIAGRAM

#### 3.1 DEM, LED AND SW ASSEMBLIES



Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



- NOTE FOR FUSE REPLACEMENT

**CAUTION -FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.  
REPLACE WITH SAME TYPE AND RATINGS ONLY.**

A

B

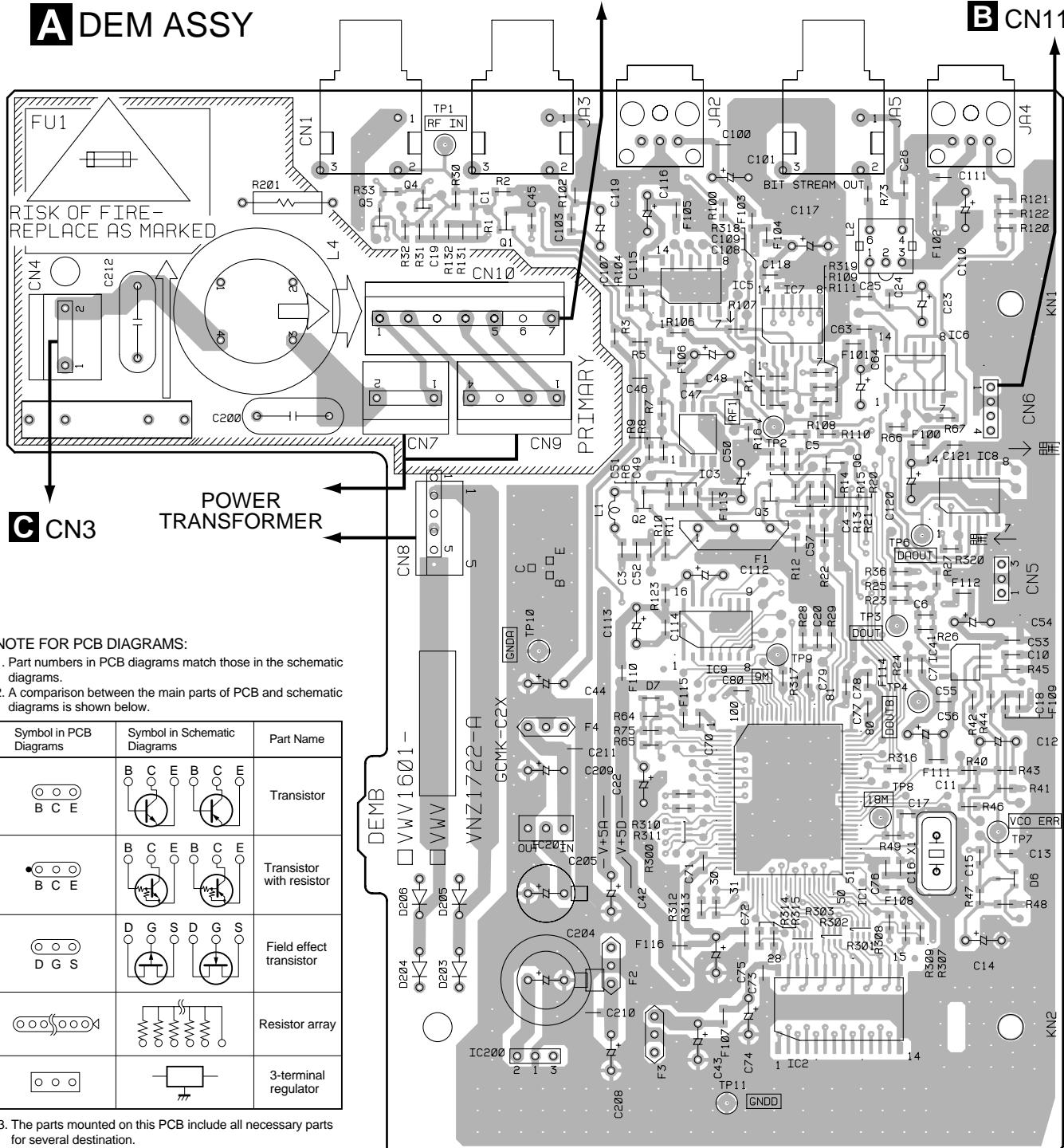
C

## 4. PCB CONNECTION DIAGRAM

## 4.1 DEM ASSY

KUC type : HOUSING ASSY(VKP2182)  
SD type : VOLTAGE SELECTOR

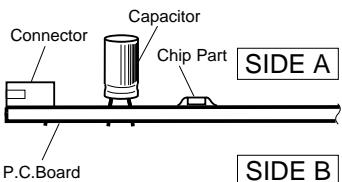
A DEM ASSY



3. The parts mounted on this PCB include all necessary parts for several destination.

For further information for respective destinations, be sure to check with the schematic diagram.

#### 4. Viewpoint of PCB diagrams

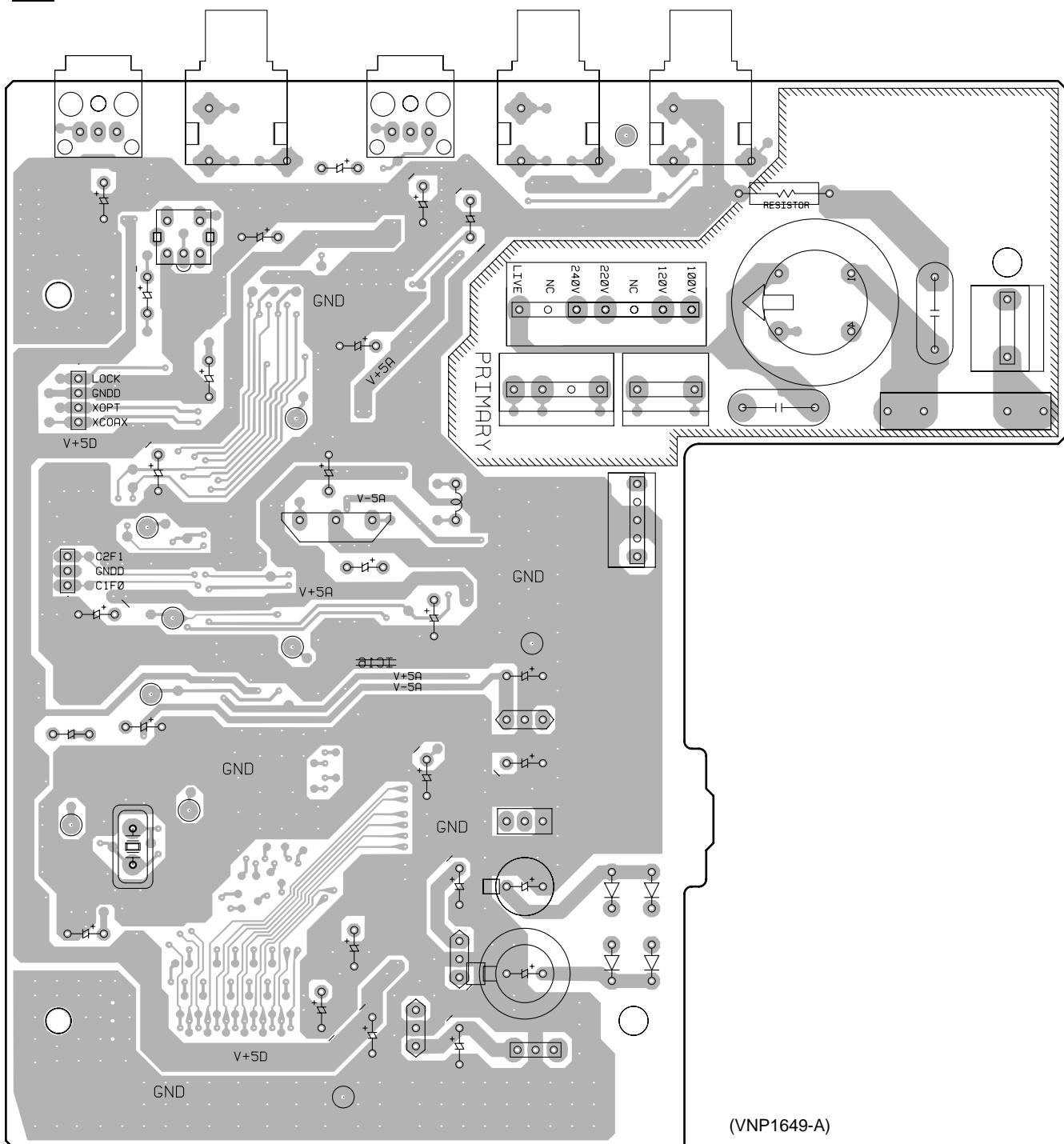


```

graph TD
    Q5[Q5] --- Q4[Q4]
    Q4 --- Q1[Q1]
    Q1 --- Q2[Q2]
    Q2 --- IC5[IC5]
    Q2 --- IC3[IC3]
    Q2 --- IC9[IC9]
    IC5 --- IC7[IC7]
    IC5 --- Q3[Q3]
    IC5 --- IC1[IC1]
    IC7 --- Q6[Q6]
    IC1 --- IC2[IC2]
    IC6[IC6] --- IC2
    IC8[IC8] --- IC2
    IC4[IC4] --- IC2
  
```

SIDE A

# A DEM ASSY

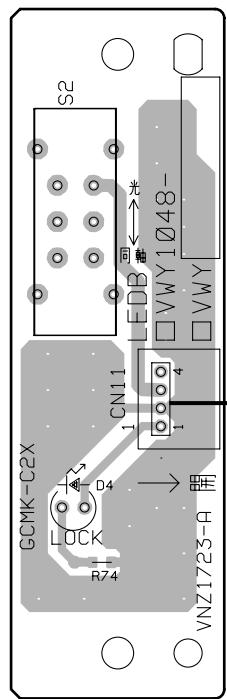
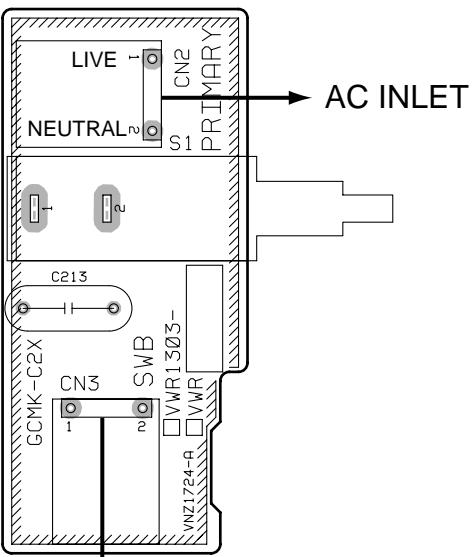
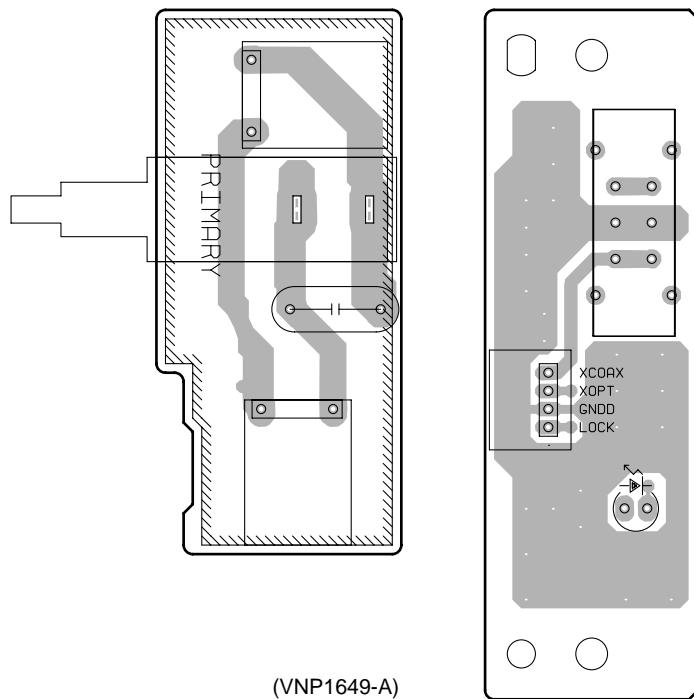


(VNP1649-A)

SIDE B

**4.2 SW ASSY AND LED ASSY**

A

**B** LED ASSY**C** SW ASSY**C** SW ASSY    **B** LED ASSY

B

C

D

## 5. PCB PARTS LIST

NOTES: • Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.  
 • The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part.  
 Therefore, when replacing, be sure to use parts of identical designation.  
 • When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

$560 \Omega$	$\rightarrow$	$56 \times 10^1$	$\rightarrow$	561 .....	RD1/4PU	5	6	1	J
$47k \Omega$	$\rightarrow$	$47 \times 10^3$	$\rightarrow$	473 .....	RD1/4PU	4	7	3	J
$0.5 \Omega$	$\rightarrow$	R50 .....			RN2H	R	5	0	K
$1 \Omega$	$\rightarrow$	IRO .....			RS1P	1	R	0	K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

$5.62k \Omega$	$\rightarrow$	$562 \times 10^3$	$\rightarrow$	5621 .....	RNI/4PC	5	6	2	1	F
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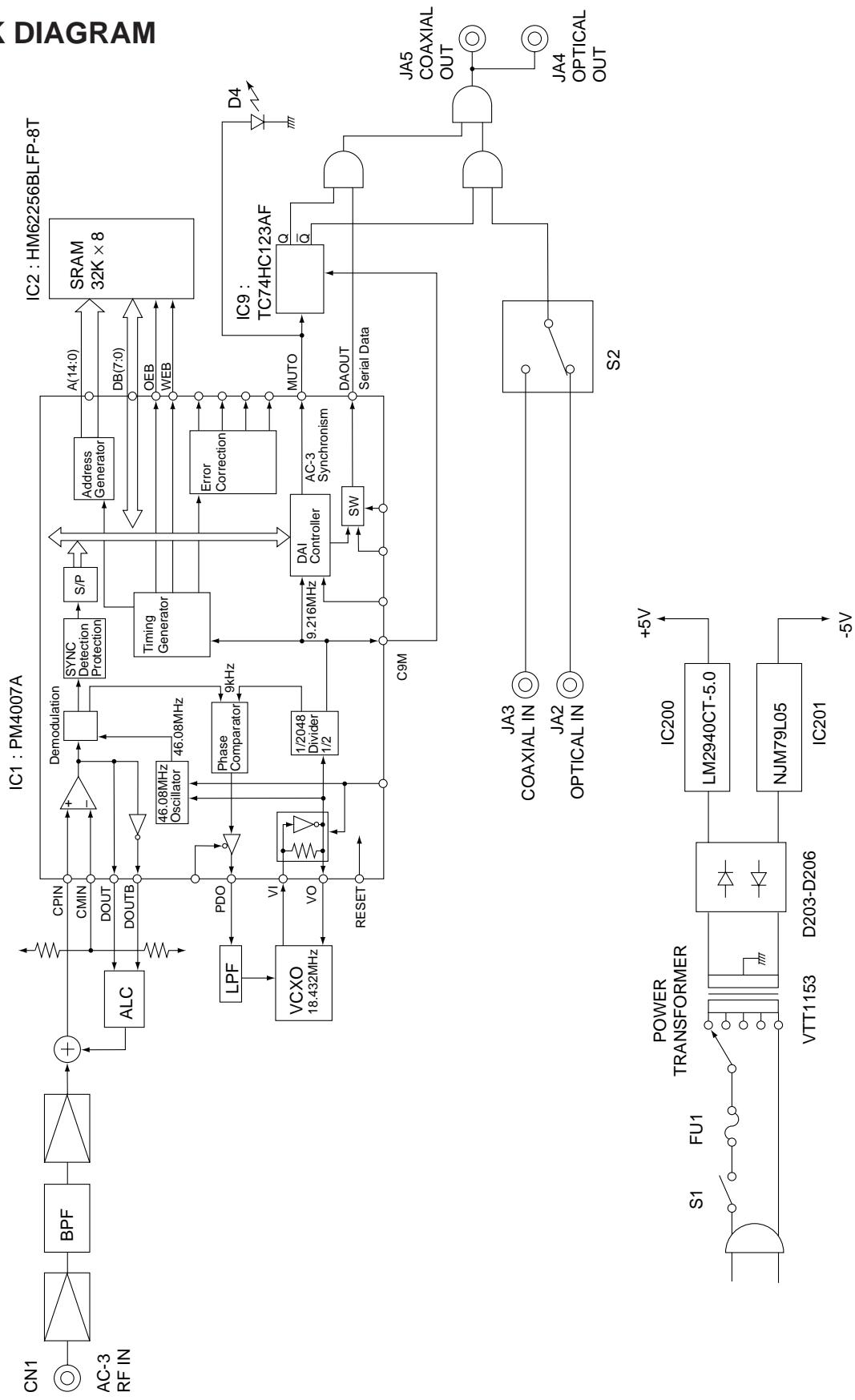
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.		
<b>LIST OF ASSEMBLIES</b>									
NSP	AC3B ASSY	VWM1830		C5		CKSQYF103Z50			
	- SW ASSY	VWR1303		C10,C100,C11,C111		CKSQYF104Z25			
	- DEM ASSY	VWV1601		C114,C115,C118,C121,C18		CKSQYF104Z25			
NSP	- LED ASSY	VWY1048		C20,C210,C211,C4		CKSQYF104Z25			
				C45-C47,C49,C51-C53		CKSQYF104Z25			
<b>A DEM ASSY</b>									
<b>SEMICONDUCTORS</b>									
	IC4	BA4560F		C55,C57,C63,C70-C73		CKSQYF104Z25			
	IC2	HM62256BLFP-8T		C76-C80		CKSQYF104Z25			
$\Delta$	IC200	LM2940CT-5.0		C6,C7		CKSQYF105Z16			
$\Delta$	IC3	MC14577CF		C1		CKSQYF223Z50			
$\Delta$	IC201	NJM79L05A		<b>RESISTORS</b>					
	IC4	BA4560F		R300-R303		RA4C101J			
	IC2	HM62256BLFP-8T		Other Resistors		RS1/10S□□□J			
$\Delta$	IC200	LM2940CT-5.0		<b>OTHERS</b>					
$\Delta$	IC3	MC14577CF		X1 CRYSTAL OSCILLATOR (18.432MHz)		ASS7009			
$\Delta$	IC201	NJM79L05A		CN1 PIN JACK(1P)		AKB7035			
	IC1	PM4007A		H1,H2 FUSE CLIP		AKR1003			
	IC7	TC74HC08AF		$\Delta$ CN7 2P CONNECTOR		B2P3-VH			
	IC9	TC74HC123AF		$\Delta$ CN4 2P CONNECTOR		B2P3-VH-BK			
	IC8	TC74HC32AF		<b>RESISTORS</b>					
	IC5,IC6	TC74HCU04AF		CN6 KR CONNECTOR		B4B-PH-K-S			
	Q3,Q6	2SA1037K		$\Delta$ CN9 4P TOP POST		B4P-VH			
	Q1,Q2,Q4,Q5	2SC2412K		$\Delta$ CN10 7P CONNECTOR		B7P-VH			
$\Delta$	D203-D206	1SR139-400		J42 OPTICAL RECEPTION MODULE		GP1F32R			
	D7	1SS355		J44 OPTICAL LINK OUT		GP1F32T			
	D6	KV1851		<b>OTHERS</b>					
<b>COILS AND FILTERS</b>									
	F1 BPF	ATF7001		J43,J45 1P PIN JACK		VKB1097			
	F100-F116 CHIP BEAD	DTF1070		CN8 3P TOP POST		VKN1461			
	L1	LAU680J		KN1,KN2 EARTH METAL FITTING		VNF1084			
	L2 PULSE TRANS.	PTL1003		<b>SWITCH</b>					
	F2-F4 EMI FILTER	VTH1012		D4		MBG5074X			
$\Delta$	L4 LINE FILTER	VTL-004		S2		DSH1036			
<b>CAPACITORS</b>									
$\Delta$	C200,C212 (0.01 $\mu$ F/AC250V)	ACG7020		<b>RESISTORS</b>					
	C107,C25	CCSQCH101J50		All Resistors		RS1/10S□□□J			
	C17	CCSQCH180J50		<b>SWITCH</b>					
	C3	CCSQCH750J50		<b>LED ASSY</b>					
	C108,C109,C19	CCSQSL102J50		D4		MBG5074X			
	C12	CEANP470M10		<b>SEMICONDUCTORS</b>					
	C22	CEAT100M50		<b>SWITCH</b>					
	C205	CEAT102M25		<b>RESISTORS</b>					
	C209,C42-C44	CEAT221M6R3		All Resistors		RS1/10S□□□J			
	C112	CEAT330M16		<b>OTHERS</b>					
	C101,C110,C113,C116,C117	CEAT470M10		CN11 KR CONNECTOR		S4B-PH-K-S			
	C120,C14,C23,C48,C50	CEAT470M10		<b>LED ASSY</b>					
	C54,C56,C64,C74,C75	CEAT470M10		D4		MBG5074X			
	C204	CEHAQ102M25		<b>SEMICONDUCTORS</b>					
	C208	CEHAQ221M10		<b>SWITCH</b>					
	C103,C13,C15,C24,C26	CKSQYF103Z50		<b>RESISTORS</b>					
				$\Delta$ S1		ASG7007			
				<b>CAPACITOR</b>					
				$\Delta$ C213 (0.01 $\mu$ F/AC250V)		ACG7020			
				<b>OTHERS</b>					
				$\Delta$ CN3 2P CONNECTOR		B2P3S-VH-BK			
				$\Delta$ CN2 2P CONNECTOR		B2P3S-VH-E			

## 6. ADJUSTMENT

There is no information to be shown in this chapter.

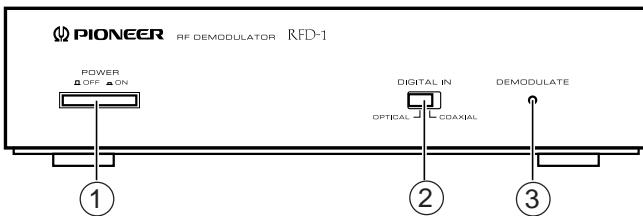
## 7. GENERAL INFORMATION

### 7.1 BLOCK DIAGRAM



## 8. PANEL FACILITIES AND SPECIFICATIONS

### PANEL FACILITIES



**① POWER switch**

Provides electrical power to the unit.

**② DIGITAL IN switch**

Use to select which of the DIGITAL IN terminals to use (either COAXIAL or OPTICAL).

**③ DEMODULATE indicator**

When lighted, indicates that the input signal supplied to the Dolby Digital (AC-3) RF IN terminal is being demodulated.

"Dolby", "Digital (AC-3)" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

### SPECIFICATIONS

#### General

##### Power requirements

US and Canadian models ..... AC 120 V, 60 Hz  
Multi-voltage model ..... AC 110/120-127/220/240 V  
(Switchable) 50/60 Hz

Power consumption ..... 6 W  
Weight ..... 1.1 kg (2 lb 7 oz)  
Dimensions ..... 202 (W) × 194 (D) × 50 (H) mm  
7-15/16 (W) × 7-5/8 (D) × 1-31/32 (H) in

#### Accessories

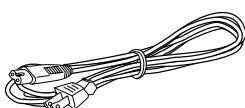
- Operating instructions ..... 1
- Power cord ..... 1

#### NOTE:

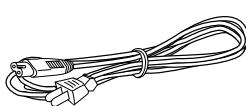
Specifications and design are subject to possible modification without notice.

### Accessories

#### Power cord



KUC type  
(ADG1126)



SD type  
(ADG7003)